

Remarks

Claims 1-24 were previously pending in this application. Claims 14-24 have been canceled without prejudice or disclaimer to facilitate prosecution of the application, and new claim 25 has been added. Claims 1, 2, 5-8, 10, 11 and 13 have been amended. Support for the amendments and new claim can be found throughout Applicants' specification as originally filed, for example, at [0036] of corresponding U.S. Patent Pub. No. US2004/0217053 A1. As a result, claims 1-13 and 25 are currently pending for examination with claim 1 being in independent form. No new matter has been added.

Rejections Under 35 U.S.C. § 102

Claims 1-4 and 7-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,209,852 to Sunaoka et al. (hereinafter "Sunaoka").

Sunaoka fails to teach a method for cleaning a membrane filtration module as recited in amended independent claim 1. Amended claim 1 recites, in part, steps of forming a gas-containing region on the first side of the permeable wall, sealing the feed-containing vessel, pressurizing a gas within the gas-containing region, and opening the feed-containing vessel to atmosphere, whereby the gas-containing region expands and produces a sweep of the feed-containing vessel to remove the liquid containing the dislodged contaminant.

Sunaoka discloses a two-stage process for membrane cleaning aimed at preventing outer surface roughening of the membranes. (See Sunaoka at col. 5, lines 27-31). A first-stage scrubbing is performed to exfoliate relatively coarse, hard, fine particles, potentially causative of membrane roughening, from iron oxide layer 29. (See Sunaoka at col. 7, lines 46-53; col. 8, lines 24-44). A preliminary drain down, facilitated by a water head or compressed air, may be carried out to discharge these particles before second-stage scrubbing of iron oxide layer 28, or, alternatively, this draining may be effected simultaneously with the first-stage scrubbing or in the early course of the second-stage scrubbing. (See Sunaoka at col. 8, line 45 through col. 9, line 6; col. 10, lines 3-17). Sunaoka discloses that the drain rate can be adjusted with valve 21 and that it is "preferably adjusted such that the waste water in the lower compartment R is drained therefrom in a relatively short time." (See Sunaoka at col. 10, lines 28-35). Sunaoka fails, however, to disclose or suggest alternative methods for effecting a high velocity drain down to

remove accumulated solids. More specifically, Sunaoka does not teach or suggest pressurizing a gas in a gas-containing region on the feed-side of the permeable wall as presently recited.

Because Sunaoka does not disclose each and every element, amended independent claim 1 is novel over the teaching of Sunaoka. Claims 2-4 and 7-13, as well as newly presented claim 25, depend from claim 1 and are likewise novel over the teaching of Sunaoka for at least the same reasons. Claims 14-24 have been canceled herein, and the rejection is therefore moot with respect to these claims.

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-7, 9 and 16-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by WO 01/36075 A1 to Janson et al. (hereinafter “Janson”).

Janson also fails to teach a method for cleaning a membrane filtration module as recited in amended independent claim 1. Janson discloses an immersed membrane filtration system in which modules of membranes are arranged in a tank open to the atmosphere, and a method of operating the system involving alternation between permeation and deconcentration steps. (See Janson at Abstract; page 3, lines 18-19; page 5, lines 16-18). The deconcentration step involves backwashing or feed flushing which causes the tank level to rise such that tank water containing solids overflows out the retentate outlet 22. (See Janson at page 6, lines 19-22). According to Janson, “some solids in the tank water 36 may have a settling velocity greater than the velocity of the upflow velocity and will settle. The volume of these solids is small and they may be removed from time to time by partially draining the tank 12 through a supplemental drain 38.” (See Janson at page 8, lines 6-9). Janson fails to disclose or suggest alternative methods of removing solids from the tank, let alone a high velocity drain down involving pressurizing a gas in a gas-containing region as presently recited.

Because Janson does not disclose each and every element, amended independent claim 1 is novel over the teaching of Janson. Claims 2-7 and 9, as well as newly presented claim 25, depend from claim 1 and are likewise novel over the teaching of Janson for at least the same reasons. Claims 16-24 have been canceled herein, and the rejection is therefore moot with respect to these claims.

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-4, 9-12, 14 and 15 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,159,373 to Beck et al. (hereinafter "Beck").

Beck discloses a method of removing retained species from a membrane module upon termination of a concentration cycle. Clarified liquid remaining in the membrane lumens is removed, and high pressure compressed gas is then introduced through inlet 18 and the lumens of the fibers 12. The still liquid-filled shell is sealed, and a reservoir of high pressure gas is accumulated in the fiber lumens because the liquid in the shell is relatively incompressible thus preventing gas from penetrating the porous walls. (See Beck at col. 5, lines 13-25). The shell outlet 17 is then opened, resulting in an explosive decompression of the pressurized gas through the fiber walls and causing dislodgment of foulants. (See Beck at col. 5, lines 26-31). Beck does not teach or suggest pressurizing a gas in a gas-containing region on the feed-side of the permeable wall as presently recited.

Because Beck does not disclose each and every element, amended independent claim 1 is novel over the teaching of Beck. Claims 2-4 and 9-12, as well as newly presented claim 25, depend from claim 1 and are likewise novel over the teaching of Janson for at least the same reasons. The rejection is moot with respect to claims 14 and 15 which have been canceled herein.

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Information Disclosure Statement

A supplementary IDS is enclosed herewith including, in part, the non-English references originally presented in the non-compliant IDS filed January 7, 2005. Copies of these non-English references have already been placed in the application file. Consideration of this supplementary IDS is respectfully requested.

Rejection Under the Doctrine of Obviousness-Type Double Patenting

Claims 1-9 and 14-24 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 7,018,533. Without acceding to the correctness of this rejection, enclosed herewith is a Terminal Disclaimer

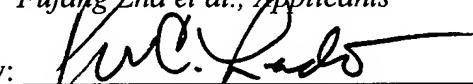
with respect to U.S. Patent No. 7,018,533 in compliance with 37 C.F.R. 1.321(c) to overcome this rejection. In view of this Terminal Disclaimer, claims 1-9 are in allowable condition. Claims 14-24 have been canceled herein and the rejection is therefore moot with respect to these claims. Reconsideration and withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing Amendments and Remarks, this application is in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes that the application is not in condition for allowance, the Examiner is requested to call Applicants' attorney at the telephone number listed below.

If this Response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,
Fufang Zha et al., Applicants

By: 
Peter C. Lando, Reg. No. 34,654
LOWRIE, LANDO & ANASTASI, LLP
One Main Street
Cambridge, Massachusetts 02142
United States of America
Telephone: 617-395-7000
Facsimile: 617-395-7070

Siemens Docket No.: 2002P87049WOUS
Docket No.: M2019-701920
Date: July 17, 2006